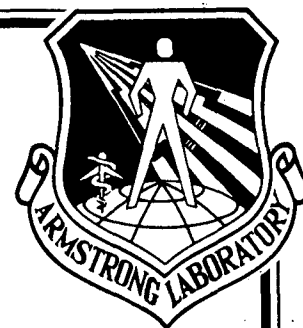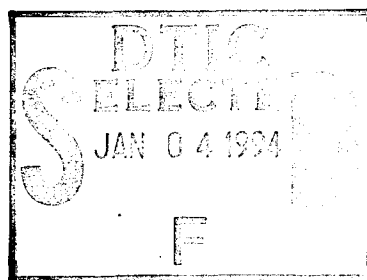AL/HR-TP-1994-0023

DESIGN CONSIDERATIONS FOR FRANKTALK:
A DISTRIBUTED GROUP SUPPORT SYSTEM

Kennon J. Moen, Capt., USAF

HUMAN RESOURCES DIRECTORATE
LOGISTICS RESEARCH DIVISION
2698 G STREET
WRIGHT-PATTERSON AFB, OH 45433-7604

Michael Wolfe, PhD

WEST VIRGINIA UNIVERSITY
DEPARTMENT OF MANAGEMENT
MORGANTOWN, WV 26505-6025

Alan R. Heminger, PhD

AIR FORCE INSTITUTE OF TECHNOLOGY
DEPARTMENT OF GRADUATE MANAGEMENT SYSTEMS
2900 P STREET
WRIGHT-PATTERSON AFB, OH 45433-7765

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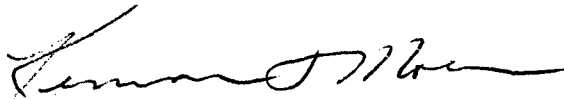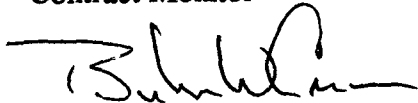
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The Public Affairs Office has reviewed this paper and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nationals.

This paper has been reviewed and is approved for publication.

KENNON J. MOEN, Capt, USAF
Contract Monitor

BERTRAM W. CREAM, Chief
Logistics Research Division

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Kennon J. Moen, Capt, USAF
Michael Wolfe, PhD
Alan R. Heminger, PhD

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Armstrong Laboratory
Human Resources Directorate
Logistics Research Division
2698 G Street
Wright-Patterson AFB, OH 45433-7604

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West Virginia University   Air Force Institute of Technology
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Morgantown, WV 26505-6025   Wright-Patterson AFB, OH 45433-7604

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This paper discusses design considerations for a prototype distributed group support system as well as an initial assessment of its demonstrated functionality. The system created enabled participants in a group process to interact with each other across time and distance. Pilot studies were performed to measure user acceptance and system effectiveness and usability.

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Preface

This paper discusses design considerations for a prototype distributed group support system as well as an initial assessment of its demonstrated functionality. The system created enabled participants in a group process to interact with each other across time and distance. Pilot studies were performed to measure user acceptance and system effectiveness and usability.

Design Considerations for FrankTalk

A Distributed Group Support System

Introduction

Most research into the development and use of computers to support group work has focused on systems designed to work primarily in a same-time, same-place environment. Systems of this type generally consist of networked computers set up in a "decision room" environment [Heminger, 1989]. With this type of system, groups can be united to work through a structured process to achieve group goals. Such a facility, the Group Research Laboratory for Logistics (GRLL), has been created at Armstrong Laboratory's Logistics Research Division at Wright-Patterson Air Force Base (AFB), Ohio. Based on our experiences with the use of the GRLL, we came to believe that there is a need for the capabilities of the GRLL, even when the group cannot meet face-to-face. There are times and situations where a group of people needs to work together on a problem when separated by time and/or distance.

We call systems that provide this support a Distributed Group Support System (DGSS). Based on the expressed interest in a DGSS, a prototype system was designed and created at the Logistics Research Division of Armstrong Laboratory. This paper discusses design considerations for this system as well as an initial assessment of its demonstrated functionality.

Background

The Director of Armstrong Laboratory was among those who recognized a need for this type of system. As the director of a laboratory whose members were geographically dispersed, he supported the development of a system to provide a more structured form of communication. He saw that such a system would help groups go beyond their current use of electronic mail and enable them to undertake and achieve their collaborative goals.

The director wanted to be able to electronically "invite" up to three dozen participants at one time (from a potential pool of all Armstrong Laboratory personnel) to participate in what would be an electronic virtual meeting. Based on the director's needs and our knowledge of group support systems, we decided that we wanted a system that would:

- allow a person to call a meeting and specify a list of participants;
- enable the person calling the meeting to pose a problem or issue to the invited participants;
- allow participation from multiple, dispersed participants;
- allow participants to generate ideas, discuss those ideas, and do rank order voting on lists of items;
- support anonymous idea generation and voting; and
- conclude by selecting the three or four best answers to the problem for further study.

The director stated that this system had the potential to "enhance the overall sense of value of all the people in his organization," and improve the Total Quality (TQ) of Armstrong Laboratory.

Systems Currently Available

Existing products which performed all the required functions (inviting participants, brainstorming, consolidating ideas, and ranking ideas) were reviewed, but they were limited to a single Local Area Network (LAN). In that regard, none of the products satisfied the "geographically dispersed" requirement of the director. Another limitation of the evaluated products was the need to have a homogenous computing environment consisting entirely of IBM®-type personal computers (PCs), entirely of Macintosh® computers, or entirely of X-windows®-based machines. There were no products identified that would operate across dissimilar computer platforms within a LAN environment; therefore, whichever platform was chosen (PC, Macintosh, or X-Windows), the product would not be available to those laboratory personnel with different computers (without the purchase of additional hardware).

An alternative to a LAN-based product was a software program running on a host computer with access to the Defense Data Network (DDN). With such an arrangement, anyone with access to the DDN would be able to reach the DGSS and take part in the group work. Since nearly all Armstrong Laboratory personnel have access to the DDN, the geographic requirement is met. The VAX computer cluster at the Logistics Research Division is connected to the DDN, thus it could serve as a host for this type of system. However, software that met the laboratory director's needs which could be supported in this VAX environment was not found; it would have to be developed by Armstrong Laboratory personnel.

Creating such a system for the VAX would be both time consuming and expensive. Therefore, we decided that before undertaking the effort necessary to create a VAX-based system, we would create a LAN-based system and investigate it for utility, consequently reducing the initial commitment to the concept, in case the idea was shown not to have merit. A PC-LAN-based DGSS would be installed on the Armstrong Laboratory Human Resources Directorate LAN and tested. Depending on the level of user acceptance, the PC-LAN-based system could be extended to work as a wide-area network (WAN) application; or if more appropriate, a host based application would be developed by the Logistics Research Division for use on the DDN.

In January, 1992, we installed a PC-LAN-based system on the Human Resources Directorate LAN at Brooks AFB, Texas. However, at the time of the test, the LAN administration policy did not allow multi-user software (e.g., there was no provision for shared user directories, which effectively negated the usefulness of groupware). For purposes of testing, however, the LAN administrator set up a five-user system for one week, after which the software was removed from the LAN. The test indicated that the software would not be effective over the Human Resources Directorate LAN as that LAN was then configured, so efforts were directed toward development of the host-based system for use on the DDN. That system came to be called FrankTalk.

Creation of FrankTalk

FrankTalk, a distributed group support system (DGSS) designed to run on VAX VMS, was developed between January and March, 1992. It was created by modifying available public-domain, bulletin-board software distributed by Digital Equipment Corporation (DEC), the maker of VAX computers. Using this software as a starting point, we were able to rapidly develop a

prototype system at minimal cost. The basic functionality of the bulletin-board software provided the capability to create structured group processes and to collect and display participant comments. We modified it to allow removal of user IDs from user comments, thus providing anonymity. In addition, we added a menu-driven user interface, along with a basic voting module. Since the system was developed as a research tool, a logging function was also included to capture usage data.

As created, FrankTalk met our initial design requirements.

- It allowed the meeting leader to set up a meeting and to specify the roster of participants.

- It enabled the person calling the meeting to pose a problem or issue for the participants.

- It supported input from multiple, dispersed participants.

- It allowed idea generation, idea discussion, and rank-order voting.

- It supported anonymity for the idea generation and voting modules.

- It allowed the meeting leader and participants to select the group's choice of best answers.

Once FrankTalk was installed, it could be accessed in any of the ways the VAX computer would normally be accessed. For users on whose VAX the software was installed, it was available as an option from their regular accounts. For those out of the local area, access was available either via modem connection or by way of the DDN. For all interested users of the system at the Logistics Research Division, an account was made available with the approval of their supervisors.

For a typical session, a leader would set up a meeting, including the agenda, the list of invited participants, and the timetable for the meeting. Participants would be notified of the meeting and would be expected to participate. To participate, they would log into the system, select the appropriate meeting, and take part in the active process. As the meeting unfolded, participants would be able to see their input, along with that of the other participants. The meeting leader would move the agenda along as each process was completed. At the conclusion, the meeting in its entirety would be available by computer, as well as in the written reports that could be created. For further information on the use of FrankTalk, see the User Manual in the appendix.

Pilot Testing FrankTalk

Two pilot studies were undertaken, both to determine the basic functionality of the system and to get initial responses from the users. A small pilot was set up on the VAX at the Logistics Research Division at Wright-Patterson AFB, Ohio (where FrankTalk was developed) and was restricted to the people in that division. A larger pilot with a larger user base was run using the Human Resources Directorate VAX at Brooks AFB, Texas. This larger pilot encompassed members of the Armstrong Laboratory headquarters, its directorates, and their divisions, including divisions in Arizona and Ohio (see Figure 1). The accompanying discussion and figures describe the usage of FrankTalk in both pilots.

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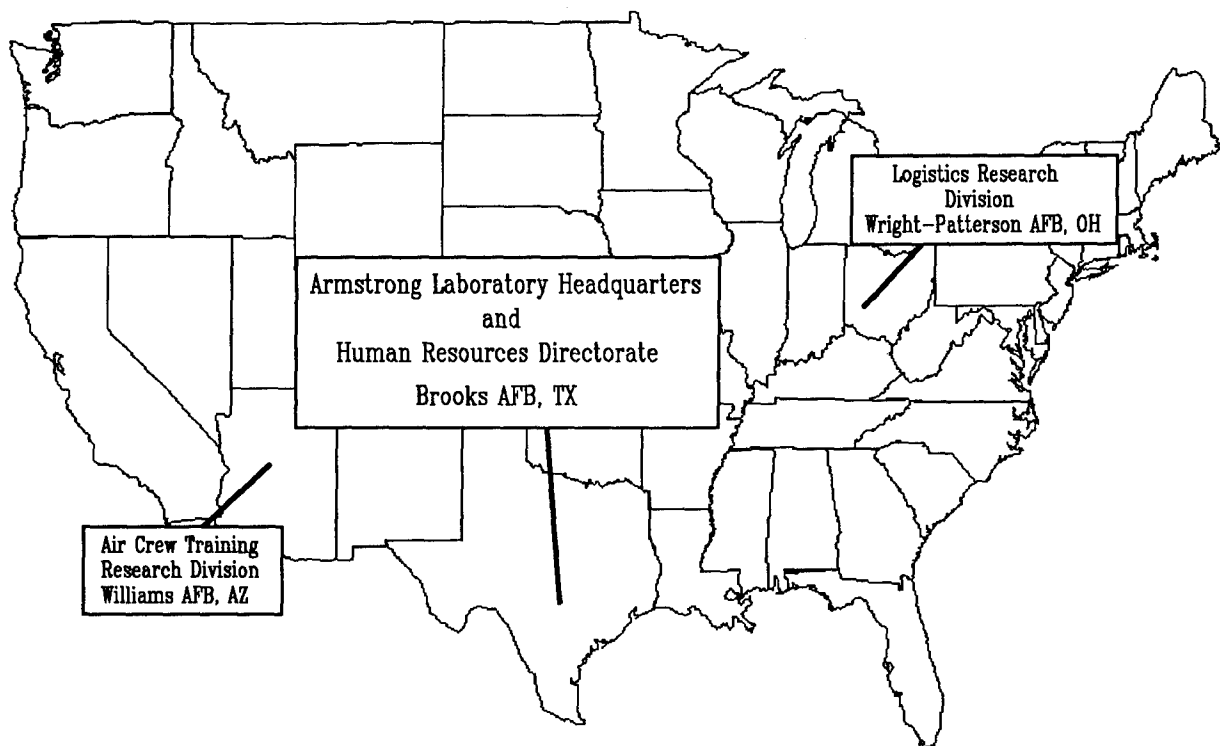
Figure 1. Locations of the FrankTalk pilot studies

The Small Pilot Installation

FrankTalk was installed for the small pilot study on March 25, 1992, and restricted to a single division. Approximately 70 persons had access to the system, although with turnover, a total of approximately 80 persons could have accessed the system over the first year of operation. Availability of the system was announced at a division-wide meeting on March 27. Details on the usage of this system during its first year of operation are shown in the accompanying Figures.

Figure 2 shows the number of persons accessing the system each day over the period from March 1992 to February 1993.
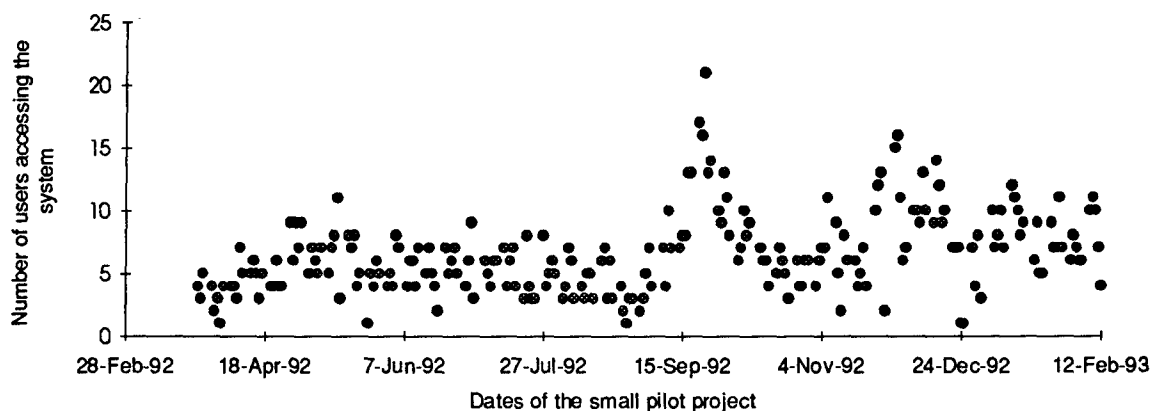
Figure 2. The number of users accessing the small pilot system per day

Initially, the system was set up as an electronic suggestion box. In a division call on May 8, 1992, the division chief announced that the electronic suggestion box would replace the former paper system and encouraged all division members to use it. Over the course of the year, other groups asked that private conferences be created. Each of these conferences were accessible only to the groups who requested them and, of course, to the computer system administrator. The activity peaks in September and December 1992, resulted when a branch chief encouraged the use of the system by the members of her branch.

Figure 3 shows the distribution of system usage among the people involved in the small pilot study. The graph indicates two trends: 1) some users initially tried the system, accessed it a few times, but then quit; and 2) some users accessed the system many times (e.g., about half the people accessed the system more than 10 times each during the test period, and 10 percent accessed the system more than 100 times).

Number of times that FrankTalk was accessed
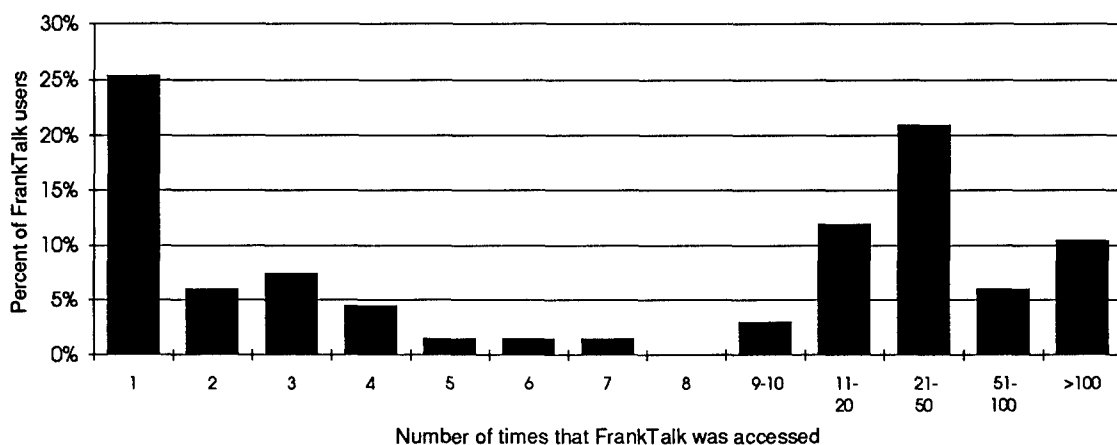
Figure 3. The number of FrankTalk accesses per user during small pilot study

The Large Pilot Installation

On 18 May, 1992, we installed FrankTalk for the large pilot study on the VAX at Brooks AFB and trained the people there to use it. The large pilot study had a pool of approximately 400 potential FrankTalk users and was directly available to most of the divisions of the Human Resources Directorate, as well as to other directorates of the laboratory. The Human Resources Director asked that all personnel within the directorate building be given access to the system. Approximately 40 percent of the personnel in the building obtained accounts on the VAX and attended the training sessions. In addition, the Director of Armstrong Laboratory asked that all laboratory Directors, Deputy Directors, and Division Chiefs receive accounts and training. Approximately 50 percent of these attended the training session. Again, the system was originally established as an electronic suggestion box which all of the users could read and post messages on. Additionally, a conference restricted to Directors and a conference restricted to Directors and Division Chiefs were created.

We then traveled to Williams AFB, Arizona, to train the Division Chief and ensure he could access FrankTalk. Next, we returned to Brooks AFB to train administrators of the system and users who had missed the first training session. A final trip was made to visit all Directors and Division Chiefs in their own offices to ensure they were able to connect to the system.

FrankTalk training at Brooks AFB was provided in a computer training room using dedicated VAX terminals. These training sessions provided an orientation to the concept of using

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FrankTalk, the ability to make sure everyone who wanted one had a valid VAX user ID, and an opportunity to ensure distribution of the FrankTalk user's guides. Everyone was given a chance to practice using the menu-oriented FrankTalk interface.

The laboratory Director proposed, as the first formal conference, a brainstorming session on possible uses of the group support system. Responses were requested from the end of December, 1992, until mid-January, 1993.

Usage was logged beginning in July, 1992, and is shown for the period July, 1992 to March, 1993 (see Figures 4 and 5). More than 120 persons have accessed the system at least once since logging was started in July (after the training sessions) and more than 80 persons have accessed the system at least twice. Figure 4 shows the total number of users of the system each day. Figure 5 shows the distribution of the system usage among the users of the system. Usage within the large pilot study can be compared with that of the small pilot study shown in Figures 2 and 3.

These data suggest that people tended toward one of two responses to the use of FrankTalk. About 25 percent of the users in each pilot accessed FrankTalk only once, suggesting that they did not find it to be particularly useful. On the other hand, about 50 percent of the users in each pilot accessed FrankTalk nine or more times, suggesting that this group may have found FrankTalk to have some value. Of course, other explanations for the distribution of the data may exist. Additional data is required to support our tentative conclusion.
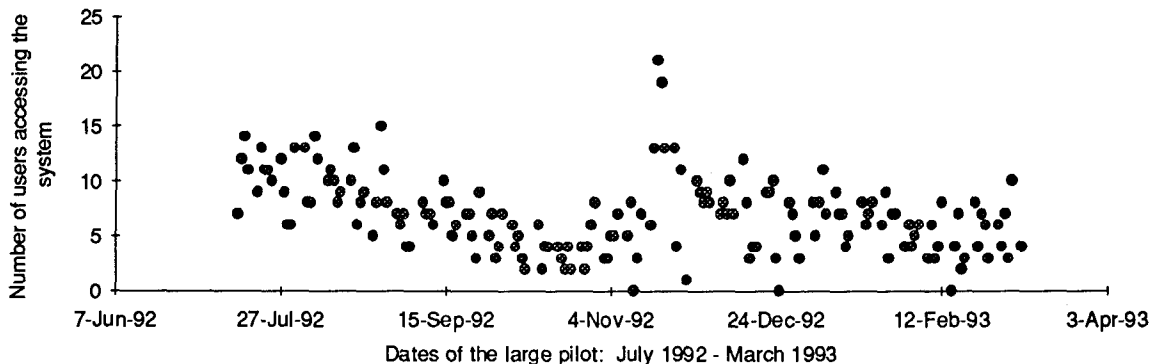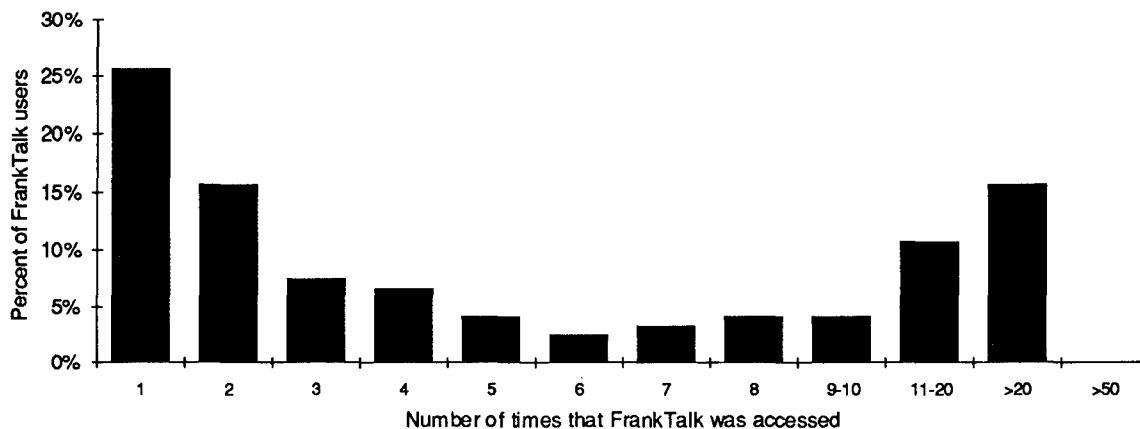

Figure 4. The number of users accessing FrankTalk per day during the large pilot study

Figure 5. Percent of users accessing FrankTalk a given number of times

Few messages were posted to the conferences restricted to directors and division chiefs. Only seven messages were posted for the entire month of February, and five of those were simply practice messages. Nevertheless, some personnel continued to access the system. Throughout the pilot, an average of approximately seven users per day accessed the system. During the first months of 1993, the average was approximately six users per day, out of a potential population of 400 users.

Discussion

Since these studies were pilot studies, our interest was in finding out if the system could support the efforts of groups working together on tasks, although working from different places at different times. To do this, we looked at three issues: effectiveness, usability, and user acceptance. Similar criteria have been used as critical success factors for assessing the success of other group-oriented computer technologies [Heminger, 1989]. In that case, Heminger used efficiency instead of usability. However, usability can be seen as a part of efficiency because a system which is difficult to use will be seen as inefficient in terms of user energy and attention to make it work. At this pilot stage of testing, our interest was focused on the usability issue.

Effectiveness

The question to ask about effectiveness is whether the system was able to fulfill its intended purpose. In this case, the question was whether the system could be successfully used to support a group that was undertaking a goal-oriented task. Each pilot group was asked to use FrankTalk as a collection box for suggestions on various topics. In each pilot, ideas were submitted anonymously from multiple users at various locations, thus fulfilling a basic expectation for the system. In addition, the participants in the small pilot used FrankTalk for a more complex process involving group generation of ideas, organization of the ideas into a series of alternatives, and rank-ordering of the alternatives. In all three cases, the users were able to use the system to carry out the assigned tasks. Thus, the system demonstrated that it could meet the effectiveness criterion.

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Usability

Data collected indicates that many users had problems related to the software interface as well as to the type of terminal or terminal emulator they used. The interface is based on, and therefore looks and performs like, a VMS application, a nongraphical, command-based interface in which the user must either remember and then enter commands directly or enter the number of an item from a list. In comparison with today's graphical interfaces, this environment is less user-friendly.

Menus are displayed to the users at all times, but at the lowest levels of FrankTalk, except in the editor, a list of appropriate commands are listed at the bottom of the screen. However, while a user adds a comment, the editor does not display the commands necessary to save the comment and exit from the editor. Many users found pressing <Ctrl>+"Z", then typing "EXIT", as a way to send a comment to be less than obvious.

An additional problem was that the computer users at the Human Resources Directorate at Brooks AFB had recently transitioned from the VAX to their PC LAN. Nearly all the PC LAN users had given up their VAX accounts and now relied entirely on their PCs. Re-establishing their VAX accounts required many of them to learn how to use a terminal emulator on their PC. Not all PC keyboards mapped exactly to the keys found on the dedicated VAX terminals used in the training sessions, causing problems for some users.

Also, unrelated to the FrankTalk program itself, the users had to remember to use two separate passwords before they could log into FrankTalk. The VAX itself required the use of computer generated passwords comprised of random, non-word sequences. In addition, a separate password was needed to log into the LAN that provided the connection to the VAX. Many users were annoyed by this inconvenience, and a number of them probably gave up using the system when they forgot their passwords.

Slow system response was also indicated as a barrier to FrankTalk usability by those who accessed FrankTalk across the DDN. Users reported that their TELNET[1] session would occasionally time-out before being able to login to the remote host, thus forcing them to re-initiate the process of logging into the system. Once into the system, the response time over the DDN often became prohibitively long. At times, the response time was so long that tens of seconds would pass from the time a key was pressed until the result was shown on the screen. Under such conditions, the users frequently became discouraged and gave up using the system.

User Acceptance

As Heminger [1989] points out, a system that is not accepted by its intended users is not used, and thus produces no value to the organization. Although, this seems to be an obvious tautology, it is one that has often been missed by system designers over the years. It is important to find out whether people will actually use the system to do their jobs. From the usage data, it is clear that while some users accessed the system more regularly than others, (50 percent of each pilot group used the system nine or more times), the system did not gain the widespread regular use that would lead to routine adoption of the technology. With such infusions of technology, a critical mass of system users is necessary for its continued use.

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[1]TELNET is an Internet standard protocol for communication. The purpose of the TELNET protocol is to provide a fairly general communications facility. Its primary goal is to allow a standard method of interfacing terminal devices and terminal-oriented processes to each other. For more information on TELNET, see the Advanced Research Projects Adminstration Request for Comments: 854, Telnet Protocol Specification.

Without a critical mass of users, people are less likely to continue to use a system, since they will find that they must still rely on additional channels to complete their work. Figure 2 shows that in the small pilot, the users demonstrated low frequency of access from the beginning of the trial. In contrast, the large pilot study participants (Figure 4) show a somewhat stronger initial use of the system, followed by a tapering off of use. In both trials, there was a mid-trial surge of activity, caused by specific urging from management to use the system. However, for both studies, the flurry of activity quickly tapered off, continuing the pattern of decreasing use.

The low turnout for training, coupled with the fact that the use patterns show a relatively low use throughout the pilot, suggests that the potential users did not accept the prototype system as a viable alternative for carrying out group work.

Some of the problems stemmed from the platform of the system. The dated user interface was found to be difficult for users. It presented a plain, and to some, unattractive screen with a command-driven or menu-driven interface. It required remembering various commands, which if forgotten, could strand a user in the middle of a session. These problems were probably accentuated for the users in the large pilot study by the fact that they had recently moved from a VMS-based system to a DOS-based LAN. Thus, using FrankTalk meant going backwards in technology.

An additional problem stemmed from the configuration of the DDN, which made timely use of FrankTalk difficult. A lesson here is that, although the configuration of the network is outside the control of the researchers, it nonetheless had important consequences for user acceptance. In a computer environment, any weak link can degrade or interrupt the overall performance of the system. When working in a network environment, it is important to pay attention to all of the components that can affect performance and acceptance.

Applegate [1991] states that the presence of an effective management sponsor is positively correlated with adoption and ownership of the system. In this case, even though there were management sponsors for both pilot tests, and even though the pilots were run within divisions of Armstrong Lab, the same lab where the system was created, it did not meet with wide user acceptance, suggesting that the issues of user interface and system response time are powerful deterrents to the acceptance of a new technology.

Conclusions

This study was undertaken to develop and to test a DGSS. The results of the study show that we did create a workable DGSS, albeit one that did not meet with strong user acceptance. FrankTalk is capable of being used by a dispersed group to generate ideas, organize the ideas, and vote on a list of alternatives. However, its lack of user acceptance suggests that it will not be a successful product in its current state.

Its lack of acceptance appears to be at least partly based on usability issues, particularly a dated user interface, a difficulty in connecting to the VAX computer on which the program resided, and long response times for those that were connected to the system via the DDN. A Graphical User Interface (GUI) was a common request from FrankTalk users.

Fifty percent of the users from each study accessed FrankTalk at least nine times, suggesting that people were willing to give the system a try, but that it did not provide sufficient usability to be successfully integrated into the working environment.

Based on the results of this investigation, it is clear that to be successful, a DGSS must not only provide specific structuring of group processes, but it must provide structuring within a

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framework that meets the usability requirements of the intended users. Since user expectations tend to be a moving target based on available technology, it will be important to carefully consider the current state of user interfaces when creating the next generation of this product.

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ACRONYMS

AFB	Air Force Base
DDN	Defense Data Network
DEC	Digital Equipment Corporation
DGSS	Distributed Group Support System
GRLL	Group Research Laboratory for Logistics
GUI	Graphical User Interface
LAN	Local Area Network
PC	Personal Computer
TQ	Total Quality
WAN	Wide-Area Network

APPENDIX

FrankTalk Users Guide

FrankTalk Users Guide

by

Ken Moen, AL/HRGA, WPAFB, OH
Michael Wolfe, Department of Management, West Virginia University, WV
Janet Peasant, AL/HRGA, WPAFB, OH

11 Dec 1992

FrankTalk Users Guide
Armstrong Laboratory
Logistics Research Division
Wright-Patterson AFB OH

I. Introduction

FrankTalk is an Electronic Meeting System. Through FrankTalk, users can brainstorm ideas interactively, post ideas, discuss these ideas, and rank these ideas from any model personal computer or terminal that can be connected to a VAX. Depending on the preference of the person calling the electronic meeting, this discussion may be anonymous or attributed. The system has been designed to ensure that anonymous discussions are anonymous; no record is kept of who made which comment in the discussion. It is likewise designed to ensure that persons making attributed comments are responsible for these comments. The person making a comment cannot attribute that comment to anyone else or delete comments.

A FrankTalk meeting has three participation roles: meeting leader, technographer, and member. The person calling and structuring the meeting is the *meeting leader*. The *technographer* handles the technical/computer details of setting up the meeting. Some meeting leaders will prefer to personally perform the role of the technographer. *Members* of the meeting will be *selected* and *invited* to participate by the meeting leader. This *invitation* will involve adding member names to the meeting access list, as well as notifying members by telephone or electronic mail. At this time, the meeting leader also declares the meeting anonymous or attributed and advises the members through the invitation.

The meeting leader and members, called participants, then type their ideas in a *brainstorming* session. FrankTalk allows several options for this session: participants may submit ideas at the same time (concurrently), monitoring others' ideas and responding immediately to the flow of the session, or they may enter ideas at different times (asynchronously), when convenient, within the timeframe set by the meeting leader. Participants may gather in any room with terminals for a face-to-face meeting or may participate from their offices in a distributed meeting. Hybrid options are also possible with FrankTalk, in which part of the meeting or some of the participants meet concurrently face-to-face, while other meeting members participate in a distributed, asynchronous manner for all or part of the meeting.

Interactive brainstorming can be done freely to get a collection of as many possible solutions to the problem as possible, because when all ideas are gathered, the meeting leader (or the technographer) can edit the ideas, combine related ideas,

separate multiple ideas submitted together, and generally clean up the brainstormed list.

The meeting leader may then submit the revised list of ideas to the participants for a vote of which ideas seem to be the best solution to the original problem. When voting is completed, participants review the rank order list. FrankTalk indicates a relative level of consensus within the group. If the group lacks consensus, a face-to-face meeting may be needed to discuss the ideas. The process can be repeated until consensus is obtained.

Alternatively, users may use FrankTalk to post ideas generated offline. FrankTalk provides a facility for uploading text documents stored on a personal computer. FrankTalk is a good forum for distributing information of general interest to a number of Air Force personnel and allowing them to discuss the information. It can support groups of three persons up to groups of about 1,000.

II. Getting Started

To become a FrankTalk participant, it is necessary to log into the VAX computer. (You should have been given instructions on how to log into the VAX when you received your user ID and password.)

To execute the FrankTalk program from the VAX $ prompt, just type:

$FRANKTALK

(If you use All-in-1, type EXIT to leave All-in-1, then type FRANKTALK.) FrankTalk responds with a list of meetings as shown in Figure 1. (Meetings are called conferences in the FrankTalk system.)

```
              CONFERENCE CHOICES

     Conference                 Conference

  1.  *FALLOUT FUND PROPOSALS   5.  SUGGESTION_BOX
  2.  FRANKTALK_FEEDBACK
  3.  GENERAL
  4.  PRACTICE_AREA

Select Conference by entering its number (or QUIT to quit):
```
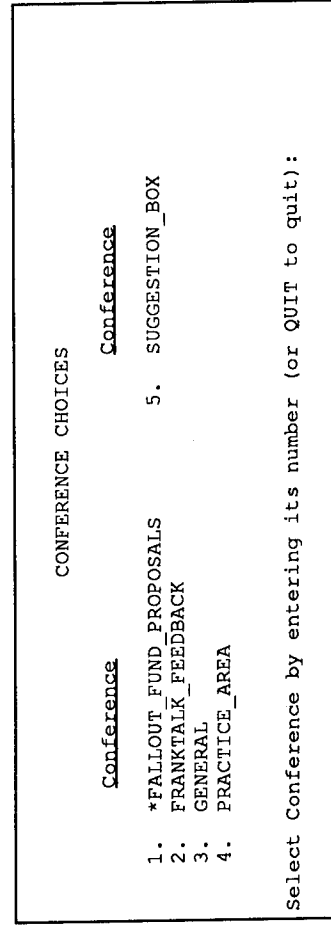
Figure 1. Main Menu

Users only see meetings to which they have been invited. A user selects a meeting by typing its **number** (not its name). When a meeting has been selected, the user gets a list of all the names of the ideas already submitted to the meeting, as shown in Figure 2.

As shown, the system displays the name of the conference in the upper left corner, the **MODE** in the top center, and the Phase in the top right corner. The MODE indicates whether the meeting is anonymous or attributed. The mode cannot be changed to identify anonymous participants after they have contributed information to the session, as no record of participant identities is kept during an anonymous meeting.

```
Conference: FALLOUT_FUND_PROPOSALS    Mode: ANONYMOUS    Phase: BRAINSTORM
  # Description
* 1 Repair front steps and handrails of bldg 190
* 2 Renovate air conditioning in bldgs 190 & 434
* 3 Redo back foyer to bldg 190 *
  4 Repave/improve parking lot next to bldg 434*
  5 New desks for government workers  *
  6 Upgrade conference room furniture  *
  7 Renovate out building to be used for storage*
  8 Install canopies over entry doors  *
  9 Retile stairwells in bldgs 190 & 434
(COMMANDS: ADD,HELP,PRINT,READ,REPLY,SCAN,EXIT)

FrankTalk>
```
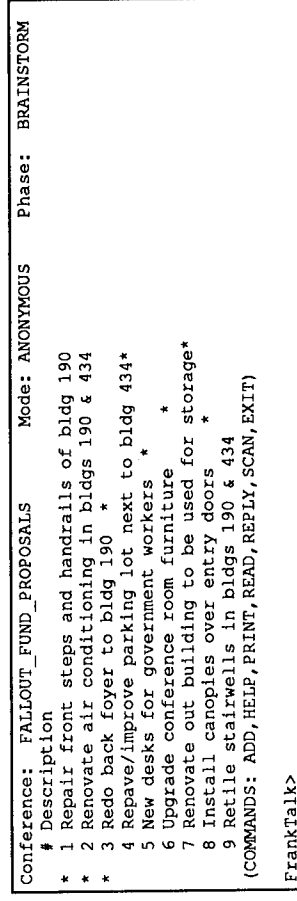
Figure 2. Sample meeting in FrankTalk in *Brainstorm* Phase

The Phase is initially set to **BRAINSTORM**, so participants may enter ideas and review others' contributions. By checking this Phase, participants may see when the meeting leader has ended the idea generation and started the voting or review phases.

The asterisk (*) indicates that the idea has not been read. To read the text of the idea, type

READ <idea number>.

For example,

READ 3

would display the full text behind the idea "Redo back foyer to bldg 190."

Other commands to view messages are

FIRST View first idea in meeting
BACK   View previous idea
NEXT   View next idea
LAST   View last idea in meeting

The other commands on the prompt line are explained below.

ADD

allows the user to add a new idea to the meeting. After typing ADD, the system requires the user to enter a single line idea which cannot exceed 53 characters. (See Figure 3.)

```
Enter 53-character, single-line description of idea [REQUIRED].
-------1-------2-------3-------4-------5---
```

Figure 3. FrankTalk system prompt for new idea

If the user decides not to enter a new idea at this time, pressing <Enter> will return the user to the list of ideas. After typing the one line idea and then pressing <Enter>, the user is presented a text editor and given a chance to describe the idea in more detail. There is no limit on the length of this description (note: this description should only expand on the basic idea; it should not include any additional ideas). When completed, the user must type

CTRL Z

(this is done by holding down the control (or CTRL) key and the Z key at the same time). After typing CTRL Z, the system responds with an asterisk (*).
Typing

*EXIT

submits the idea.
From the FrankTalk> prompt, typing

HELP

displays a menu of help commands. Typing

PRINT <idea number>

prints out the one-line idea and full description.

PRINT/ALL

prints out the full list of ideas (both one line and full descriptions). Both PRINT and PRINT/ALL print on the VAX default printer, which is usually at the central site where the FrankTalk VAX is located. Printing at remote sites is done by typing **EXTRACT/ALL**, emailing the resulting file, and printing it at the remote site.
Typing

REPLY

allows the user to comment on an idea. The procedure is similar to that used to ADD an idea. Replies will not be voted on in later stages of the meeting. (Replies should support or challenge an idea. Care should be taken not to generate a new idea within the reply.)

Typing
SCAN

shows the full text of all ideas (both idea and full descriptions) on the display. When a participant has completed work on a given meeting, typing

EXIT

returns to the list of meetings.
One final command (not shown in Figure 2) is available when the meeting is ATTRIBUTED. This command is

RESPOND.

After READing an idea, typing RESPOND allows the user to send an email message to the person who contributed the idea, using the normal VAX email. This command is used to elicit clarification or to make some private comment on the idea to its author.

```
Conference:  FALLOUT_FUND_PROPOSALS        Mode: ANONYMOUS         Phase: VOTE
  # Description
* 1  Repair front steps and handrails of bldg 190
* 2  Renovate air conditioning in bldgs 190 & 434
* 3  Redo back foyer to bldg 190
* 4  Repave/improve parking lot next to bldg 434
* 5  New desks for government workers
* 6  Upgrade conference room furniture
* 7  Renovate out building to be used for storage
* 8  Install canopies over entry doors
* 9  Retile stairwells in bldgs 190 & 434
(COMMANDS: HELP,PRINT,READ,REPLY,SCAN,VOTE,EXIT)
FrankTalk>
```

Figure 4. Sample meeting in FrankTalk in *Voting* Phase

When the meeting leader decides that enough ideas have been generated, the technographer changes the Phase to *VOTE*. In the *voting* phase, the meeting would look like Figure 4. The upper right corner of the screen displays VOTE as the current phase, and VOTE has replaced ADD in the list of commands.

The new command VOTE allows users to rank the ideas by typing
VOTE choice1,choice2,choice3,...
(e.g., typing
VOTE 3,5,9
selects 3 as the top choice, 5 as second, 9 as third, and all the others tied for last place). Users may vote for none of the ideas, for all the ideas, or just for some ideas. Voting is anonymous, even in attributed meetings.
Caution: The syntax of this command is sensitive to exactly where the user types in spaces. A participant must type
VOTE<one space><choices>
with no spaces among the choices.

conference, get in touch with your local FrankTalk focal point or Capt Kennon Moen (DSN 785-8363; Commercial 513-255-8363).

When the meeting leader decides that voting is complete, the technographer puts the meeting in *REVIEW* phase. In this phase, participants may see the results of the vote.

To see the results of voting, participants type

TALLY.

A screen similar to the one in Figure 5 is displayed.

```
Conference:   FALLOUT_FUND_PROPOSALS        Mode: ANONYMOUS          Phase: REVIEW
Rank (#) Description              Voters = 2            Vote   1  2  3  4
1    (2) Renovate air conditioning in bldgs 190 & 434  0.995  1  1  0  0
2    (6) Upgrade conference room furniture             0.995  1  1  0  0
3    (5) New desks for government workers              0.980  0  0  2  0
4    (7) Renovate out building to be used for storage  0.485  0  0  0  1
5    (1) Repair front steps and handrails of bldg 190  0.000  0  0  0  0
6    (3) Redo back foyer to bldg 190                   0.000  0  0  0  0
7    (4) Repave/improve parking lot next to bldg 434   0.000  0  0  0  0
8    (8) Install canopies over entry doors             0.000  0  0  0  0
9    (9) Retile stairwells in bldgs 190 & 434          0.000  0  0  0  0
(COMMANDS: HELP,PRINT,READ,REPLY,SCAN,TALLY,EXIT)
FrankTalk>
```

Figure 5. Sample *Review* Phase Screen

The Review phase screen displays a lot of information. The first column of numbers at the left of the screen shows the idea's rank as a result of the vote. The second column of numbers shows the numbers the ideas were given when first entered into the list. You need to use this number with the read command if you want to view the description of the idea. The decimal number on the right of the display is an average of the resulting vote, obtained by assigning decreasing values for place votes for first, second, and so forth, and averaging these values over all the votes cast. The next four columns indicate how many people ranked each of the ideas in one of the four highest positions.

III. Using FrankTalk

Figure 1 shows some sample conferences. The actual conferences available to users will vary as meeting leaders create and remove conferences. Three conferences will be initially available to all FrankTalk participants: General, Practice_Area, and FrankTalk_Feedback. General is a default conference created when FrankTalk is set up. The plan is to use General as an output device to provide information of a general nature to FrankTalk users. Practice_Area is a conference for you to use to get acquainted with FrankTalk. Go ahead and try out some of the FrankTalk commands here. FrankTalk_Feedback is an area you can use to communicate your impressions of FrankTalk. You can add your recommendations for improvements to FrankTalk here. If you have topics you would like to set up as a FrankTalk

Appendix. Uploading Personal Computer Files to FrankTalk

The only protocol available on the VAX is KERMIT. To upload, start KERMIT.

You will see

KERMIT-32>

Type

KERMIT-32>**RECEIVE**

On your local machine, access the KERMIT SEND command. On a PC, this is done by typing CTRL-]; on a Macintosh, it is a menu option. Then type C

KERMIT>SEND <filename>

KERMIT>C

KERMIT-32>QUIT

Now enter FrankTalk, select your conference, and ADD as usual:

FRANKTALK>ADD

<Title of your message>

CTRL-Z

*INSERT <name of your file>

*EXIT

FRANKTALK>

Your message should now be loaded into FrankTalk from your PC. If you have any problems, or need any help, please call us.

Summary of Commands

Command	Phase	Function
ADD	Brainstorm	Add new idea to meeting
BACK	All	View previous idea in a meeting
EXIT	All	Leaves meeting
EXTRACT/ALL	All	Saves all ideas to a file
HELP	All	Provides on-line help
LAST	All	View last idea in a meeting
NEXT	All	View next idea in a meeting
PRINT	All	Prints hard copy at central site
QUIT	Main menu	Quits FrankTalk
READ	All	Displays full text of idea
REPLY	All	Comment on existing idea
RESPOND	All (Attributed Mode only)	Send email to originator of idea
SCAN	All	Provides list of all ideas
TALLY	Review	Computes average of votes
VOTE	Vote	Cast vote for top ideas